



**UNIVERSITI TEKNOLOGI MARA**

**CID470: CERAMIC COMPUTER AIDED INDUSTRIAL DESIGN-3D**

<b>Course Name (English)</b>	CERAMIC COMPUTER AIDED INDUSTRIAL DESIGN-3D <b>APPROVED</b>
<b>Course Code</b>	CID470
<b>MQF Credit</b>	2
<b>Course Description</b>	This course will include the various types of 3D modeling software suitable for ceramic industry such as Auto CAD, Solidworks 3 D modeling, Alias, Catia etc. It will demonstrates idea from 2 D drawing to 3 D modeling in model, mould making and product for prototyping.
<b>Transferable Skills</b>	3D modeling software suitable for ceramic industry
<b>Teaching Methodologies</b>	Lectures, Lab Work, Demonstrations, Tutorial, Computer Aided Learning
<b>CLO</b>	<p>CLO1 Identify relevant knowledge and the right practice in in developing 3 D modeling using computer aided design application</p> <p>CLO2 Apply the understanding, attributes and skills in effective ways in the contexts of creative and innovative practices of developing computerized 3D modeling</p> <p>CLO3 Demonstrate the ability of produsing creative and innovative 3 D model design according to requirement in computer aided design application</p>
<b>Pre-Requisite Courses</b>	No course recommendations
<b>Topics</b>	
<b>1. 1. Introduction to Computer-Aided Ceramic Design</b>	
1.1) 1.1. Computer aided design and it's usage	
<b>2. 2. Introduction to 3D modelling software</b>	
2.1) 2.1. Familiar with various components of the Graphical user interface (GUI)	
2.2) Menus	
2.3) Keyboard Shortcut	
2.4) Toolbars	
2.5) Feature Manager Design Tree	
2.6) Properties Manager Menu	
2.7) Terminology – Feature, Plane, Extrusion, Sketch, Boss, Cut, Fillet & Round	
2.8)	
2.9) 2.2. Basic 3 D Modelling	
2.10) 2.3. Basic 3 D Assembly	
2.11) 2.4. Basic 3 D Drawing	
2.12) • Project Assignments 1 (Project 1 (part ) & Project 2 (part ), Project 3 (assembly), Project 4 (Technical Drawing)	
<b>3. 3. Revolve and Sweep Features</b>	
3.1) 1. Creating a revolved feature	
3.2) 2. Sketching and dimensioning arc and an ellipse	
3.3) 3. Creating sweep feature	
3.4) 4. Creating an extruded cut feature with a draft angle	
3.5) • Project Assignments 2 (Quiz 1, Candle Stand & Bottle)	
<b>4. 4. Revolve and Sweep Features</b>	
4.1) 1. Creating a revolved feature	
4.2) 2. Sketching and dimensioning arc and an ellipse	
4.3) 3. Creating sweep feature	
4.4) 4. Creating an extruded cut feature with a draft angle	
4.5) • Project Assignments 3a (Mug 1 & 2 Body & Handle)	

<p><b>5. 5. Revolve and Pattern</b>  5.1) 1. Creating a revolved feature  5.2) 2. Creating planes  5.3) 3. Creating a solid by connecting the profile (lofting)  5.4) • Project Assignments 3b (Linear pattern, Circular pattern, Quiz 2, Vase and Spice Jar)</p>
<p><b>6. 6. Assemblies</b>  6.1) 1. Bringing parts into an assembly  6.2) 2. Using these assembly mating relations: (Coincident, Concentric, Parallel and Tangent)  6.3) • Project Assignments 4 (Universal Joint)</p>
<p><b>7. 7. Test 1</b>  7.1) n/a</p>
<p><b>8. 8. Loft Features</b>  8.1) 1. Creating planes  8.2) 2. Creating loft feature  8.3) 3. Creating revolved base feature  8.4) 4. Creating shell feature  8.5) • Project Assignments 5 (Chisel, Gear and Microphone)</p>
<p><b>9. 9. Tableware Project</b>  9.1) 1. Creating planes  9.2) 2. Creating a solid by connecting the profile (lofting)  9.3) 3. Creating revolved base feature  9.4) 4. Creating a linear and circular pattern  9.5) • Project Assignments 6 (Coffee Body, Spout, Handle, Lid, Cup &amp; Saucer)</p>
<p><b>10. 10. Special Topic</b>  10.1) • Sheet Metal  10.2) • 3D Sketch</p>
<p><b>11. 11. Special Topic</b>  11.1) • Photoworks  11.2) • Mould Design</p>
<p><b>12. 12. Personal / Individual / group Projects</b>  12.1) Create their own personal / Individual / group project using the software</p>
<p><b>13. 13. Personal / Individual / group Projects</b>  13.1) Create their own personal / Individual / group project using the software</p>
<p><b>14. 14. Test 2</b>  14.1) n/a</p>

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Project Assignments 2 (Quiz 1, Candle Stand & Bottle)	10%	CLO1 , CLO2
	Assignment	Project Assignments 3a (Mug 1 Body & Handle, Mug 2 Body & Handle)	10%	CLO1 , CLO2
	Assignment	Project Assignments 4 (Universal Joint)	10%	CLO1 , CLO2 , CLO3
	Assignment	Project Assignments 5 (Chisel, Gear, Microphone)	10%	CLO1 , CLO2 , CLO3
	Assignment	Project Assignments 6 (Coffee Body, Spout, Handle, Lid, Cup & Saucer)	10%	CLO1 , CLO2 , CLO3
	Assignment	Project Assignments 3b (Quiz 2, Vase, Spice Jar)	10%	CLO1 , CLO2 , CLO3

Reading List	Recommended Text
	<ul style="list-style-type: none"> <li>• Greg Jankowski and Richard Doyle; technical editor, Ricky Jordan 2008, <i>SolidWorks for dummies, 2nd edition</i>, Wiley Pub. Inc. Hoboken, N.J. [ISBN: 0470129786]</li> <li>• Matt Lombard, <i>SolidWorks surfacing and complex shape modeling bible</i>, Wiley ; 2008. Hoboken, N.J. [ISBN: 0470258233]</li> <li>• Richard M. Lueptow, Michael Minbiole 2002, <i>Learning SolidWorks</i>, Prentice Hall Upper Saddle River, N.J. [ISBN: 0130334936]</li> <li>• Paulo Jorge da Silva Bartolo (Editor), <i>Virtual and Rapid Manufacturing</i>, Taylor &amp; Francis [ISBN: 0415416027]</li> <li>• Matt Lombard 2013, <i>Solidworks 2013 Bible Paperback</i> [ISBN: 1118508408]</li> <li>• Godfrey Onwubolu 2014, <i>Applied Mechanics with Solidworks Hardcover</i> [ISBN: 1783263806]</li> <li>• Ibrahim Zeid (Author) 2013, <i>Mastering SolidWorks (2nd Edition)</i> [ISBN: 0133885941]</li> <li>• Greg Jankowski and Richard Doyle; technical editor, Ricky Jordan 2008, <i>SolidWorks for dummies, 2nd edition</i>, Wiley Pub. Inc. Hoboken, N.J. [ISBN: 0470129786]</li> <li>• William Howard (Author), Joseph Musto (Author) 2014, <i>Introduction to Solid Modeling Using SolidWorks 2014Paperback</i> [ISBN: 0078021243]</li> <li>• James D. Bethune (Author) 2014, <i>Engineering Design and Graphics with SolidWorks 2014Paperback</i>[ISBN: 0321993993]</li> <li>• Radostina V. Petrova (Author) 2014, <i>Introduction to Static Analysis Using SolidWorks Simulation Hardcover</i> [ISBN: 1482236184]</li> </ul>
Article/Paper List	This Course does not have any article/paper resources
Other References	This Course does not have any other resources